



2015 VERMONT WILDLIFE HARVEST REPORT – MOOSE



VERMONT

FISH & WILDLIFE DEPARTMENT

(802) 828-1000 / www.vtfishandwildlife.com



2015 Vermont Moose Harvest Report

Most of the programs described in this report are funded through the *Federal Aid in Wildlife Restoration Program*. This program was initiated in 1937 as the Federal Aid in Wildlife Act and created a system whereby taxes are paid on firearms, ammunition and archery equipment by the public who hunts. Today this excise tax generates over a hundred million dollars each year that are dedicated to state wildlife restoration and management projects across the United States. The State of Vermont uses these monies for acquiring land, and for restoring and managing wildlife. These excise tax dollars, coupled with state hunting license fees, have been the predominant source of money funding the successful restoration and management of Vermont's wildlife resources.

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The MISSION of the Vermont Fish & Wildlife Department is the conservation of fish, wildlife, and plants and their habitats for the people of Vermont.

Vermont Fish & Wildlife Department

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2015 Moose Report

One hundred and nineteen moose were harvested in Vermont's 2015 moose seasons. Ten moose were taken during the archery-only season and 109 in the regular season. An estimated 16 tons of moose venison was harvested during the combined seasons, providing 128,000 meals.

Archery Season

For Vermont's fifth annual archery-only moose season, a total of 1,769 valid lottery applications were received (1,181 residents and 588 non-residents). For the first time, all archery permits were for bulls only. Forty-two permits were issued, with 37 allocated to residents, and 5 to non-residents. Two of the non-residents won their permits through the annual auction.

Harvest Dates and Success Rates

The archery moose season ran for 7 days, from October 1-7, during the peak of the moose rutting season. Bulls are more responsive to calling at this time of year compared to mid-October, thus increasing the odds that bow hunters are able to call in moose to within shooting distance. Moose were taken on each day of the season except opening day (Table 1). The overall success rate was 24%, down from 38% for the previous 4 seasons combined. The restriction to bulls-only likely contributed to the lower success rate, but lower moose densities, warm weather, and late leaf-drop may have also been contributing factors. Success rates by WMU are given in Table 2.

TABLE 1. 2015 ARCHERY MOOSE HARVEST BY DAY OF SEASON

Season Day	1	2	3	4	5	6	7
Moose Harvested	0	1	3	2	2	1	1

Harvest Data

The Vermont Fish & Wildlife Department does not operate official biological check stations during the moose archery season. This is because with the low permit numbers and statewide distribution of the archers, it would not be cost



Tammy Miller of Fairfax, VT harvested this new archery season state record moose in Norton, Vermont. Tammy's moose weighed 931 lbs. and had a 53³/₄" spread.

Scouting

Moose hunter surveys were returned by 15 (36%) of the 42 archery season hunters, all of whom reported that their party scouted prior to the hunting season. Average time spent scouting was 31.9 hours/party, and the average number of moose seen per hour scouted was 0.027, or approximately 1 moose seen for every 37 hours of scouting effort.

Hunting Information

All but 3 of the 15 archery survey respondents saw at least 1 moose during the open season; the total moose seen was 53. Eight different hunters passed up on 15 bulls; 3 of these hunters eventually tagged a moose whereas 5 did not. Hunting methods used included calling (all 15 respondents), still hunting (13), ground blinds (7), tracking (5), and tree stands (4).

effective to staff check stations. Instead, successful moose archers may report their kill to any authorized regular big game reporting station. Some of these stations are set up to weigh moose, and most also recorded antler spreads and point totals from the bulls. These data are presented in Table 3. Scaled carcass weights were obtained for 7 moose, with 5 bulls weighing over 700 pounds, including a new record-weight for Vermont's moose archery season. This was a 931 pound, 6 year old bull taken in Norton. This bull also had the widest spread at 54 inches. Eight moose were taken by residents and 2 by non-residents (from Massachusetts and New Jersey). Two moose were taken by archers using crossbows.

TABLE 2. 2015 VERMONT ARCHERY MOOSE HUNTER SUCCESS RATES BY WMU

WMU	Permits Issued	Harvest	2015 Percent Success	2011-2014 Average Success Rate
C	5	1	0.20	0.30
D1	5	2	0.40	0.62
D2	5	0	0.00	0.25
E1	12	5	0.42	0.40
E2	3	1	0.33	0.24
Z*	12	1	0.08	0.43
Totals	42	10	0.24	0.38

*WMUs G, H, I, J1, J2, L, M, O, P, and Q were all available to persons with a permit for area "Z". The lone "Z" harvest was from WMU I.

TABLE 3. 2015 VERMONT LEGAL MOOSE ARCHERY SEASON HARVEST DATA

Last Name	WMU	Town Kill	Age Class	Cementum Age	Sex	Weight (lbs)	Spread (inches)	Total Points
BEAUPRE	C	BELVIDERE	ADULT		M	792	39	13
CLARKE	E1	FERDINAND	ADULT		M		25	9
DAVIS	E1	LEMINGTON	ADULT	2	M	575	38	9
DOMIERRE	D1	EDEN	ADULT		M	775	42.5	17
GARDNER	D1	EDEN	ADULT		M	750	43.5	10
HIPES	E1	AVERILL	ADULT	2	M		30	6
MILLER	E1	NORTON	ADULT	6	M	931	54	16
POWELL	I	LINCOLN	ADULT		M		38	10
RHODES	E1	AVERILL	ADULT	1	M	417	28	4
ROBILLARD	E2	EAST HAVEN	ADULT	3	M	705	43.5	11



Regular Season

A total of 7,788 valid applications were received for the 2015 Vermont regular moose season lottery (5,853 residents and 1,935 non-residents). Unsuccessful applicants from the previous seasons were awarded bonus points if they applied again in 2015. Ninety percent of the permits (206) were allocated to residents and the remainder (24) to non-residents. Included in this total were 3 permits won through an auction process, and 3 Special Opportunity Permits issued to youths through a sponsoring organization. Seventy permits (30%) were valid for moose of either-sex, while the remaining 160 (70%) were valid only for bull moose.

Harvest Dates and Success Rates

Vermont's 23rd moose season began on the third Saturday in October (17th) and ran for 6 days. The early season weather was generally

favorable for hunting with seasonably cool temperatures and occasional light rain. Warmer temperatures prevailed over the last 3 days, and throughout the season hunter visibility was reduced due to the later than normal leaf fall. There were 32 moose taken on opening day (Table 4). Overall success rate was 47%, down from 52% the previous year (Table 5).

Biological Data

Ninety-two (84%) of moose taken were bulls, 15 (14%) were cows, and 2 (2%) were calves (1 male and 1 female). Completely-dressed carcass weights were obtained from 93 moose, or 85% of the total harvest. Six bulls weighed over 750 lbs. and the largest was an 854-lb., 10-year old taken in Bethel. The widest spread was 53 inches, carried by a 9-year old bull taken in Stockbridge. The average completely-dressed weight of 14 yearling bulls and 64 older bulls was 439 and 627 lbs., respectively.

TABLE 4. 2015 VERMONT MOOSE HARVEST DISTRIBUTION BY DATE, SEX, AND AGE CLASS

Date	Bulls	Cows	Calves	Total	Percent
October 17	25	6	1	32	.29
October 18	21	3	—	24	.22
October 19	15	2	—	17	.16
October 20	13	1	—	14	.13
October 21	7	3	1	11	.10
October 22	11	—	—	11	.10
Totals	92	15	2	109	1.00

TABLE 5. 2015 VERMONT MOOSE HUNTER SUCCESS RATES BY WMU

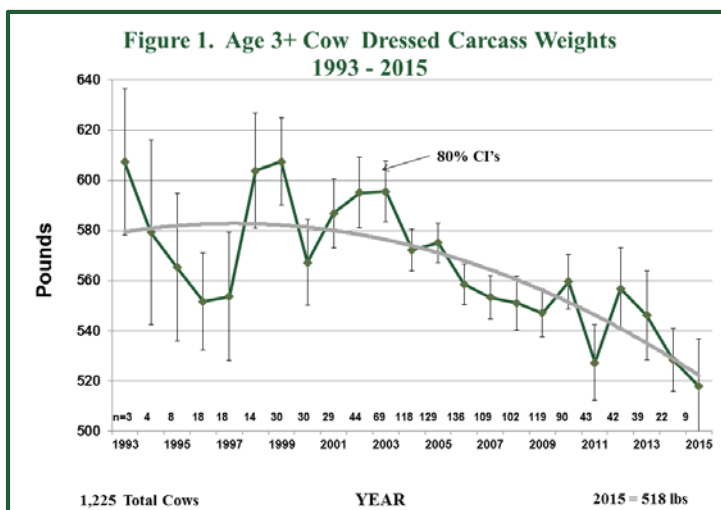
WMU	Bulls	Cows	Male Calves	Female Calves	Total Harvest	Permits Issued	2015 Percent Success	2014 Percent Success
B & C	12	7		1	20	30	0.67	0.73
D1	10				10	30	0.33	0.48
D2	6				6	20	0.30	0.72
E1	20	8	1		29	40	0.73	0.68
E2	7				7	15	0.47	0.60
G	2				2	5	0.40	0.30
H	4				4	20	0.20	0.37
I	7				7	14	0.50	0.55
J1	3				3	10	0.30	0.60
J2	3				3	10	0.30	0.40
L	4				4	5	0.80	0.50
M & O	10				10	20	0.50	0.27
P & Q	4				4	11	0.36	0.27
Totals	92	15	1	1	109	230	0.47	0.52
% of Total	0.84	0.14		0.02				

Permit total of 230 includes 3 auction winners and 3 Special Opportunity Permits.

The heaviest cow was a 579 lb., 6-year old taken in Averill. The average weight of 9 mature cows (age 3 and older) was 518 lbs. (Figure 1). High moose populations in the Northeast Kingdom from 2001 to 2009 caused overbrowsing of food supplies which led to lower body weights. Following the reduction of the moose herd through high permit quotas and antlerless-only permits, there were some annual increases in body weights. The overall trend, however, continues to be downward, likely due to the debilitating effects of high winter tick infestations. The Department again sampled larval tick loads on moose harvested in 2015 and found virtually no change (20.2 ticks/bull) from the numbers of ticks counted the previous year (19.0 ticks/bull). Both of these averages are about 30% lower than the 2013 count.

Complete sets of ovaries (reproductive organs) were collected from 11 cows (a return rate of 73%). In healthy populations with access to plenty of food, this index of

calf production for prime-aged cows (ages 3 and older) ranges from 1.25 to 1.75 ova (or egg) produced per cow. The average number of ova per prime-aged cow in 2015 was only 0.86. Cows generally must have a dressed weight of at least 440 lbs. to produce one calf, and at least 500 lbs. to have twins. Ovulation rates, while fluctuating from year to year, have followed a similar overall declining trend as carcass weights over the past 15 years (Figure 2).



Central incisor teeth were collected from 102 adult moose in order to establish age data. The average age of adult moose was 3.76 years (Figure 3), and 19% were yearlings, indicating a satisfactory recruitment of calves born in 2014. Forty-three percent of adults were 4 years or older, which is well above the minimum goal of 25% as called for in the 10-year Big Game Plan. The oldest cow was 14 years old, and the oldest bull was 11 years old.

Town of Kill

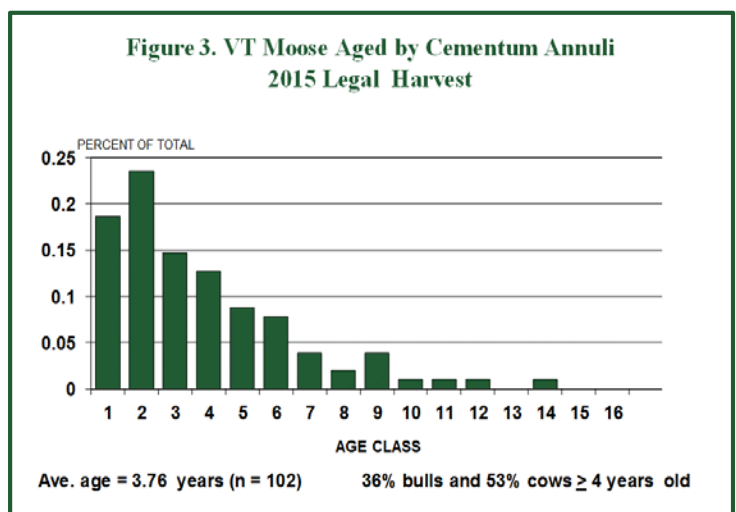
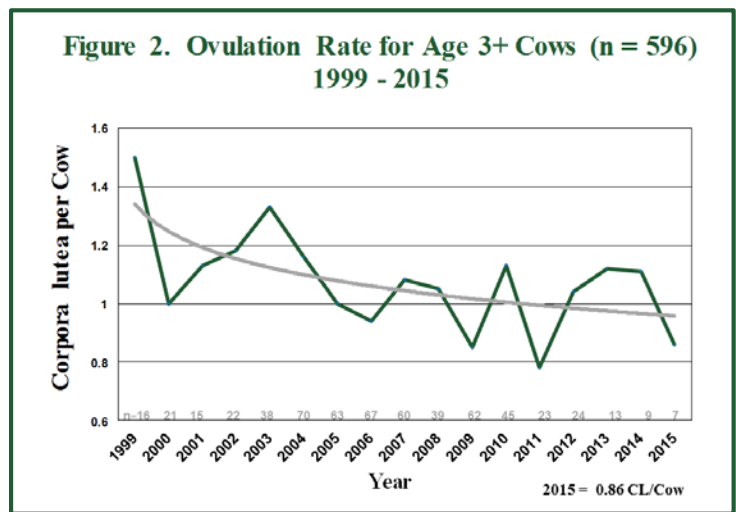
Moose were taken in 66 different towns. The towns with the highest harvests were Averill (9), Lowell and Westfield (6 each), and Belvidere and Bloomfield (5 each). Figure 4 shows the geographic distribution of the moose harvest by township and WMU.

Scouting

Moose hunter surveys were returned by 132 of the 230 permittees, 123 (93%) of whom reported that they scouted prior to the hunting season. Average time spent scouting was 31 hours/hunting party, and the average number of moose seen per hour scouted was 0.059, or approximately 1 moose seen for every 17 hours of scouting effort. This sighting rate was virtually unchanged from the previous year (Table 6).

Hunter Success

Forty-six and 58% of resident and non-resident permits, respectively, were successfully filled. The 14 successful non-resident permittees hailed from 7 different states as follows: Pennsylvania and New York (3 each), Massachusetts and Michigan (2 each), and one each from Colorado, Kentucky, New Hampshire, and New Jersey. Subpermittees took 21 (19%) of the moose killed. All moose were taken with a rifle except for one that was taken with a .50 caliber muzzleloader. Physical



measurements from harvested moose are shown in Table 7 (males) and Table 8 (females). Overall, 121 hunters were unsuccessful, and 51 (42%) of them returned a survey. Thirty-three percent of these unsuccessful hunters did not hunt all available days. The number of days hunted by the 51 respondents is shown in the following table:

Days Hunted	0	1	2	3	4	5	6
Number of Respondents	2	0	1	3	8	3	34

Twenty-seven (53%) of the responding unsuccessful hunters saw a total of 66 moose, 9 of whom passed up 13 moose that they believed they could have taken (6 bulls, 3 cows, and 4 calves).

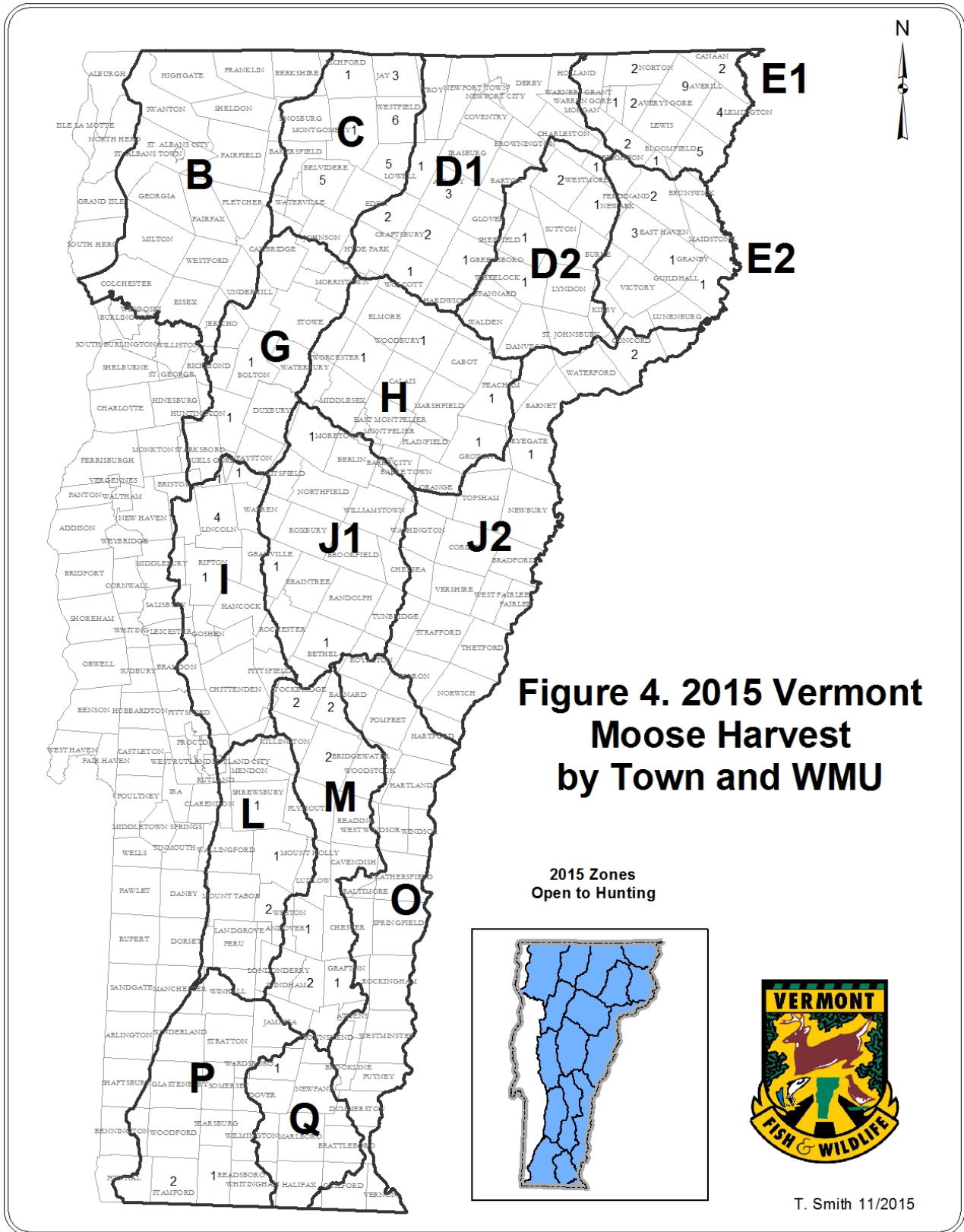


TABLE 6. MOOSE SEEN PER HOUR SCOUTED BY 140 HUNTERS WHO SCOUTED PRIOR TO THE 2015 VERMONT MOOSE HUNT

WMU	Number Scouting	Moose Seen	Hours Scouted	Moose/Hr Scouted	MSHS 2014	MSHS 2013	MSHS 2012	Hours/Hunter Scouting
B/C	17	22	540	0.041	0.02	0.03	0.13	19.4
D1	17	10	587	0.017	0.03	0.05	0.06	33.7
D2	6	7	139	0.050	0.06	0.07	0.14	34.9
E1	23	78	781	0.100	0.14	0.08	0.13	25.2
E2	9	18	233	0.077	0.05	0.09	0.09	30.6
G	3	0	107	0.000	0.03	0.06	0.01	42.3
H	12	16	423	0.038	0.06	0.02	0.05	29.4
I	6	7	118	0.059	0.04	0.11	0.07	37.9
J1	3	3	48	0.063	0.04	0.04	0.02	28.2
J2	6	14	233	0.060	0.02	0.02	0.02	54.0
L	4	12	126	0.095	0.01	0.04	0.05	37.0
M/O	13	17	382	0.045	0.08	0.04	0.20	27.4
P/Q	4	21	102	0.206	0.03	0.02	0.01	51.9
Totals	123	225	3,819	0.059	0.056	0.053	0.079	32.3

TABLE 7. 2015 VERMONT MOOSE LEGAL HARVEST DATA – BULLS ONLY

LAST NAME	WMU	TOWN of KILL	AGE	WGT	BEAM	PTS/L	PTS/R	SPREAD
ACABBO	C	JAY	3	665	47	6	6	35
ADAMS	E2	EAST HAVEN	7	709	52	10	7	47.5
ALLARD	C	LOWELL	1	400	33	1	2	16.5
ASTBURY	M	BARNARD	6	575	50	4	2	37
ATKINS	I	STARKSBORO	2	9999	27	99	99	27
ATKINS II	I	LINCOLN	4	592	44	5	4	34
AUSTIN	E1	LEMINGTON	0.5	229		99	99	99.9
BEACH	E1	AVERILL	5	766	53	8	7	48.5
BOYCE	E1	LEMINGTON	2	535	47	4	4	34
BOYER	D2	SHEFFIELD	2	476	41	2	4	25.5
BRAMAN	J2	RYEGATE	99.9	9999	30	99	99	30
BRICK	J2	CONCORD	2	490	42	6	2	99.9
BROWN	E1	NORTON	99.9	9999	30	99	99	30
BURBO	D2	WESTMORE	2	9999	27	99	99	27
CARON	E1	AVERILL	3	625	48	6	5	39.5
CASTINE	M	WINDHAM	1	413	30	2	2	25.25
CHEGWIDDEN	E2	GUILDHALL	7	9999	48	7	8	45
COLBURN	L	WESTON	2	539	46	3	3	30.5

TABLE 7. 2015 VERMONT MOOSE LEGAL HARVEST DATA – BULLS ONLY

LAST NAME	WMU	TOWN of KILL	AGE	WGT	BEAM	PTS/L	PTS/R	SPREAD
CONLEY	C	LOWELL	1	453	32	3	3	25
COONS	C	WESTFIELD	1	473	38	2	2	25
CRAM	1	FAYSTON	6	762	62	6	7	42.5
CURRIER	D1	WOLCOTT	99.9	9999	22	99	99	22
DALEY	G	HUNTINGTON	5	645	6	5	4	46
DEAETTE	E1	NORTON	4	615	43	6	5	37
DEGREE	D1	GREENSBORO	9	698	59	5	8	43.5
DEROSIA	M	WINDHAM	2	585	43	3	3	28
DICKSON	E1	BLOOMFIELD	1	433	32	3	2	23
DRAGON	E2	GRANBY	3	602	44	4	3	33.5
FULKERSON	E1	CANAAN	1	473	37	2	2	23
GARRISON	E1	BLOOMFIELD	4	596	46	7	6	33.5
GOUVEIA	D1	LOWELL	11	633	55	5	4	46
GRAZIANO	D2	BRIGHTON	2	588	42	8	7	35
HANNAN	D1	CRAFTSBURY	1	392	36	4	4	31
HULL	C	BELVIDERE	5	730	55	7	9	47.5
JACOBS	C	RICHFORD	4	558	40	99	99	99.9
JENNINGS	I	LINCOLN	5	619	52	7	8	44.5
JOYAL	G	BOLTON	4	589	46	5	5	33
KESSLER	J1	MORETOWN	3	586	49	4	4	36.5
KIK	C	MONTGOMERY	2	619	46	6	5	36
KING	H	PEACHAM	4	714	52	6	6	44.5
KING	E1	AVERILL	2	601	48	6	6	35
KNUDSON	D2	WESTMORE	8	802	56	6	4	52
KUPFER	P	READSBORO	1	9999	43	3	2	20.5
LAMARCHE	Q	WARDSBORO	2	552	42	6	5	31.5
LANTAGNE	E1	WARREN GORE	4	694	50	7	6	38
LAPERLE	M	BARNARD	1	456	24	1	1	18
LAVALETTE	E2	EAST HAVEN	5	770	56	11	10	46.5
LEIGH	J1	GRANVILLE	6	790	52	10	11	46
LEONARD	E1	BLOOMFIELD	3	632	43	4	5	33
LINCOURT	L	MT HOLLY	2	9999	36	2	1	24
LONGWAY	C	LOWELL	6	678	45	7	5	41.5
MARSH	D1	EDEN	1	390	29	2	1	21.5
MASCITTI	M	GRAFTON	2	480	41	4	4	33
MASURE	E2	EAST HAVEN	3	646	50	4	3	35.5
MCDONOUGH	I	LINCOLN	99.9	9999	40	99	99	40
MCMURRAY	D1	ALBANY	4	645	48	3	3	42
MEHALICK	E1	BLOOMFIELD	2	582	46	6	7	31.5
MEIGS	E2	FERDINAND	3	644	49	4	6	42.5
MERRIAM	C	LOWELL	6	658	53	9	9	46

TABLE 7. 2015 VERMONT MOOSE LEGAL HARVEST DATA – BULLS ONLY

LAST NAME	WMU	TOWN of KILL	AGE	WGT	BEAM	PTS/L	PTS/R	SPREAD
MESSIER	D2	WHEELOCK	2	481	37	29	1	24
MOULTON	D1	ALBANY	1	465	36	2	3	24.5
NELSON	H	WORCESTER	5	711	52	8	6	42.5
PETSCHAUER	E1	LEMINGTON	5	9999	51	8	7	44.5
POLLARD	H	GROTON	1	9999	38	3	1	25
PORTER	C	WESTFIELD	2	607	40	5	4	32
POTTER	P	STAMFORD	2	462	39	3	3	33
POULIN	C	BELVIDERE	3	619	40	4	3	32
PROVOST	H	WOODBURY	99.9	9999	28	99	99	28
PUTNAM	M	STOCKBRIDGE	9	714	60	9	10	53
PUTVAIN	D1	EDEN	5	9999	52	7	7	36
PYTKO	P	STAMFORD	2	537	53	6	5	32.5
QUILLIAM	E1	CANAAN	2	494	43	5	5	29.5
RAWSON	L	WESTON	7	694	56	5	6	41.25
ROWE	E1	AVERILL	4	678	46	6	6	38.5
RUFUS	D1	CRAFTSBURY	2	496	38	2	3	27
SANDERSON	M	BRIDGEWATER	1	459	35	2	1	22.5
SAWYER	M	STOCKBRIDGE	4	708	48	5	5	38
SAWYER	M	BRIDGEWATER	3	583	38	3	3	34
SHEPHARD	J1	BETHEL	10	854	59	8	8	47
SMITH	E1	LEMINGTON	3	633	46	5	5	38
SMITH	J2	CONCORD	2	560	42	3	3	26
STOCKER	E1	AVERILL	1	433	34	2	1	26
STOWELL	M	ANDOVER	3	663	49	6	7	45
SUDDABY	32	FERDINAND	2	471	35	2	1	22.5
TETREULT	E1	FERDINAND	6	595	42	3	2	35.5
THOMAS	L	SHREWSBURY	3	705	51	7	7	43.5
WALCOTT	E1	AVERILL	3	559	40	3	3	31
WALKER	C	JAY	4	705	54	7	6	49
WATERHOUSE	D1	ALBANY	1	444	36	3	3	23
WESCOM	C	BELVIDERE	4	651	48	7	9	49
WHITE	D2	NEWARK	1	457	40	3	2	29
WILBUR III	I	RIPTON	9	9999	52	4	5	35
WILLIAMS	I	LINCOLN	9	674	52	7	8	45

Weight is carcass weight completely dressed in lbs., Beam is in millimeters, Pts. /Left and Right are number of points at least 1 inch long, Spread is in inches measured to the nearest half-inch. Age is cementum age except for 0.5 is a calf aged by tooth replacement at department-operated check station; 99, 99.9 and 9999 = unknown or missing data.

TABLE 8. 2015 VERMONT MOOSE LEGAL HARVEST DATA– FEMALES ONLY

LAST NAME	WMU	TOWN of KILL	WGT	AGE	OVARIES	CL1	CL2	TOTALCL
BOUDLE	E1	BLOOMFIELD	534	3	YES	1	0	1
CAMBER	C	BELVIDERE	512	4	YES	1	0	1
CORRON	C	WESTFIELD	476	12	NO			
DEBONO	C	WESTFIELD	419	1	NO			
DESLANDES	C	WESTFIELD	470	8	NO			
FETTERS	C	BELVIDERE	219	0.5	NO			
HOWARD	E1	AVERILL	579	6	YES	1	0	1
JACOBS	C	WESTFIELD	452	3	YES	0	0	0
JACOBS	C	LOWELL	568	5	YES	2	0	2
KING	C	JAY	525	7	NO			
KIPP	E1	BRIGHTON	545	6	YES	1	0	1
LEGGIO	E1	AVERYS GORE	9999	14	YES	0	0	0
MITCHELL	E1	AVERILL	9999	1	YES	0	0	0
PREHEMO	E1	AVERILL	564	2	YES	1	0	1
WHITAKER	E1	AVERYS GORE	370	2	YES	0	0	0
WILLIAMS	E1	BRIGHTON	317	1	YES	0	0	0

Weight is carcass weight completely dressed in pounds; Total CL is number of corpora lutea; Age is cementum age except for 0.5 is a calf aged by tooth replacement; 99.9 and 9999 = unknown or missing data.

2016 Permit Numbers

The moose herd in the Northeast Kingdom was finally reduced to target densities 5 years ago after many years of overpopulation. To achieve this, high numbers of either-sex and antlerless-only hunting permits were issued from 2004 through 2010. Permit numbers returned to normal levels in 2011 and were reduced over each of the next three years as the statewide moose estimate continued to decline over this period. Despite population reduction, reproductive rates remained well below healthy levels, and permit numbers were reduced further for the 2015 season. In addition, for the first time, permits for most WMUs were restricted to bulls-only in order for populations to grow more quickly toward the desired levels. It is anticipated that bulls-only permits will be used for no more than a few years, otherwise the adult sex-ratio could become out of balance, possibly leading to late- or un-bred cows.

The Department remains concerned about how a warming climate may affect moose health, including the potential to lead to more severe parasite infestations. With continued declining indices of population size for many WMUs, the Department expects to propose another reduction in permits for the 2016 hunt.